Before the
Federal Communications Commission
Washington D.C. 20554

In the Matter of	)	
	)	
Section 68.4(a) of the Commission's Rules	)	WT Docket No. 01-309
Governing Hearing Aid-Compatible Telephones	)	RM-8658
	)	
	)	

Reply Comments of the Rehabilitation Engineering Research Center on Telecommunications Access

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SUMMARY

Comments from both the wireless and the hearing aid industries reinforce the need for the Federal Communications Commission (FCC or Commission) to oversee the participation of all stakeholders – the wireless and hearing aid industries, consumers, hearing technology professionals and the Federal Food and Drug Administration – in a cooperative process to achieve hearing aid compatibility. In their comments, the wireless industry did not dispute the fact that little progress has been made to design compatible phones over the past six years. It is now incumbent upon the Commission to step in and, by lifting the exemption, direct the industry to work toward this goal.

Generally, the wireless industry asks that the Commission rely on the models of foreign nations, including the United Kingdom and Australia, to resolve the HAC problem here in America. But a close look at the experience of these other countries reveals that reliance upon their practices would be misplaced in the U.S. First, in countries where GSM is the only or predominant digital wireless technology – such as the United Kingdom – consumers with hearing aids still have significant difficulty using digital wireless telephones. Insofar as several providers in the U.S. are now migrating toward the exclusive use of GSM technologies, the experience in the United Kingdom only serves to emphasize the need for our country to lift the HAC wireless exemption. Second, amelioration of the wireless HAC problem in Australia appears to be less a result of changes in hearing aids – as industry comments suggest – than the result of the availability of more compatible CDMA phones in that country. Moreover, because it has no law of its own to require manufacturers to make accessible phones, Australia actually appears to be looking to the U.S. for a long-term solution to the compatibility problem.

We agree with several parties to this proceeding that the FCC should not limit the HAC requirements to any particular transmission technology; a limitation of this nature could only hurt consumer choice. However, the FCC should acknowledge that there are significant differences in the way that the various digital transmission technologies interact with hearing aids. Moreover, wireless providers and manufacturers should be directed to convey information about these differences to consumers, so that consumers have a better opportunity to find a compatible phone.

We concur with those commenters who suggest that the Commission's proceeding should focus on achieving the usability of wireless telephones. We understand that the original concept of compatibility was founded on a wireline environment and needs updating to be applied to digital technologies. We also agree that there may be more than one way to achieve such usability. However, as we noted in our earlier comments, the solutions for hearing aid compatibility must, for the present time, include inductive coupling, as the only known mechanism for effective internal coupling between handsets and hearing aids to date.

Solutions to the HAC issue also need to consider economic and other factors that go into the purchase of a hearing aid. The selection of a hearing aid cannot be based solely or even primarily on the aid's performance with digital wireless telephones; rather, this decision typically turns on both the user's needs in many listening situations and the cost of the hearing aid. Individuals who can afford to pay several thousand dollars for a hearing aid can choose among newer models with greater immunity at the high end; most people, however, do not have that option. Standards for compatibility are needed so that

users can select hearing aids that meet their needs, and still have the expectation that these aids will work with digital wireless telephones.

The existence of the ANSI C.63.19 measurement standard does not, in and of itself, negate the need for lifting the wireless HAC exemption. But knowing the emission levels of phones can provide much needed guidance to consumers even where the immunity level of the consumer's hearing aid is unknown. For the standard to be effective, however, it cannot be only voluntary; to avoid perceived competitive disadvantages and to ensure the full range of consumer choice in the marketplace, a uniform requirement is needed.

As noted in our earlier comments, we agree with the many commenters who emphasize the importance of educating retail staff, hearing professionals, and consumers on options for achieving compatibility. Consumer education, however, cannot be a substitute for technical standards; rather education and outreach need to be part of a broader HAC solution that includes such standards. In addition, as we move toward a HAC solution, reporting requirements can allow the FCC and stakeholders to keep abreast of new developments while motivating companies to make progress toward the statutory objectives of accessibility and usability.

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Reply Comments of the
Rehabilitation Engineering Research Center
on Telecommunications Access

I. **Introduction**

The Rehabilitation Engineering Research Center on Telecommunications Access (RERC-TA) submits these reply comments in response to comments filed in the above captioned proceeding. Initial comments were filed by RERC-TA on January 11, 2002 in response to the Federal Communications Commission's (FCC or Commission) Notice of Proposed Rulemaking (NPRM).

II. **Areas of Consensus**

Comments to this proceeding reveal that there are a number of points on which industry and consumers appear to agree. It may be helpful to the Commission to start from these areas of consensus as it works toward a resolution in this proceeding. Some general points of agreement include:

- Wireless phones create interference for consumers who use hearing aids. [1]

[1] Telecommunications Industry Association (TIA) at 7, 9-10; CTIA at 4, 6-7, 11-12. This is in contrast to comments filed on the 1995 petition, where several members of the wireless industry expressed considerable doubt about the existence of an interference problem. See *e.g.,* Comments of Northern Telecom, Inc. at 2 (Aug. 1, 1995) (problems with interference to hearing aid users were 'de-minimis or non-existent"); Personal Communications Industry Association at 2,3 (July 17, 1995) (described the petition's claims as being "speculative"); American Personal Communications at 7 (July 17, 1995) (noted

- All individuals should have access to wireless phones.[2]

- The goal is to achieve usability of wireless phones. Inductive coupling needs to be reviewed for its appropriateness and effectiveness in a wireless environment.[3]

- A multifaceted, rather than a single solution, will likely be needed to achieve usability.[4]

- The HAC Act mandates an internal means of compatibility.[5]

- The first two prongs of the review standard have been satisfied (public interest; harm to hard of hearing people)[6]

- Future wireless technologies (e.g., Bluetooth) may hold promise for achieving compatibility.[7]

- The various stakeholders – wireless and hearing aid manufacturers, carriers, consumers, hearing technology professionals – need to work together on solutions. The wireless industry, in particular, emphasizes the need to share information with the hearing aid industry and to involve the FDA.[8]

- Information for consumers is needed to enable them to know which phones and hearing aids are best for their individual hearing needs.[9]

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that there was not a problem because there were few complaints from hearing aid users in Europe, Asia, and Australia);

[2] Cellular Telecommunications and Internet Association (CTIA) at 1 (industry goal is "to provide wireless products and services to anyone who desires them"); TIA at 26 (TIA and its members "want to get as quickly as possible to the point where all hearing aid users can use virtually any cell phone"); Matsushita Electric Corporation of America (Matsushita) at 2-3 (Panasonic believes everyone should enjoy the benefits of consumer electronic products).

[3] Sprint PCS (Sprint) at 3; CTIA at 2-3,5,7; Rehabilitation Engineering Research Center on Telecommunications Access (RERC-TA) at 23-27.

[4] CTIA at 3; American National Standards Institute (ANSI) at 15; Association of Access Engineering Specialists (AAES) at 23; RERC-TA at 24-25.

[5] Sprint at 9 (Act "specifically requires" phones to provide an internal means for use with hearing aids); CTIA at 5 ((Act intended to ensure access through internal compatibility); Self Help for Hard of Hearing People, Inc. (SHHH) at 8; Alexander Graham Bell Association for the Deaf and Hard of Hearing (AG Bell) at 6, 13-14; Consumer Action Network (CAN) at 2; Telecommunications for the Deaf, Inc. (TDI) at 4,5.

[6] TIA at 25 (notes exemption cannot be lifted only because the third and fourth criteria on technological feasibility and marketability cannot be met); TIA at 2 (it is in the public interest for all consumers to have access to cellular phones). See also SHHH at 1-2; AG Bell at 4; 11,15; National Association of the Deaf (NAD) at 1; TDI at 2,4-5; Hearing Industries Association (HIA) at 2-3

[7] CTIA at 18; RERC-TA at 24; TIA at 8-9.

[8] AT&T Wireless (AWS) at 5; Cingular Wireless LLC (Cingular) at 8; Sprint at 5; TIA at 24; RERC-TA at 27-29.

[9] AG Bell at 14; CTIA at 24; Sprint at 14, 19-20; AWS at 5; AAES at 15; ANSI at 14; RERC-TA at 32.

- Analog services cannot serve as a long-term substitute for digital services.[10]

III. A Mutual Problem-Solving and Standard-Setting Approach

A number of the parties commenting on this proceeding agree that both the wireless and the hearing aid industries need to work together to achieve appropriate solutions for hearing aid compatibility. Cingular, for example, notes that there is a "symbiotic relationship" between mobile handsets and hearing aids.[11] Similarly, AT&T Wireless characterizes the relationship between hearing aids and phones as "mutually interdependent."[12] Although some members of both the wireless industry and the hearing aid industry suggest that it is the responsibility of the other to make changes to its equipment,[13] the past several years have shown that achieving an effective and long term solution to the HAC issue will require the active cooperation of *both* industries to standardize and implement solutions.

Comments from both industries reinforce the need for a monitored process of mutual problem-solving and standard-setting to achieve wireless compatibility. Several parties to this proceeding have advocated the creation of a forum for this purpose. For example, the RERC-TA is joined by at least two other parties in recommending that the FCC explore the creation of a forum sponsored by the Alliance for Telecommunications

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[10] In contrast to comments submitted in response to the 1995 petition, where several members of the industry directed the Commission to urge consumers to use analog services if they were unable to access digital services (See *e.g.,* CTIA at 16 (July 17, 1995); Bellsouth Corporation at 8 (July 17, 1995), virtually no industry commenters propose analog services as an alternative in the instant phase of this proceeding. Sprint even suggests that the Commission incorporate the pleadings filed in this proceeding in its Part 22 docket, so that the FCC can better determine an "appropriate phase out period for analog service." Sprint at 11, n.37.

[11] Cingular Wireless (Cingular) at 8.

[12] AT&T Wireless (AWS) at 5.

[13] See *e.g.,* Sprint at 18 (emphasizing that the most promising solution is to have hearing aid manufacturers build in hearing aid immunity); TIA at 14 (noting that the solution primarily lies in immunizing the hearing aid design from interference); Hearing Industries Association at 8-9 (significant progress has already been made by the hearing aid industry; the Commission should press the wireless industry to adopt techniques that do not cause interference).

Industry Solutions (ATIS).[14] Along these lines, Sprint advocates the participation of all involved parties – hearing aid wearers, audiologists, hearing aid manufacturers, handset manufacturers, and wireless service providers,[15] and says that a forum that "would allow the affected parties to identify the available steps that could be implemented to minimize or eliminate compatibility problems."[16] Similarly, Matsushita urges the FCC to encourage technical discussions among hearing aid manufacturers, wireless carriers, and wireless phone manufacturers, and proposes FCC sponsorship of an inter-industry forum to facilitate these discussions.[17] Several parties also note the importance of bringing the FDA into these joint efforts, in light of the agency's jurisdiction over the manufacture of hearing aids.[18] Even TIA acknowledges the need for FCC intervention: "[T]he Commission should foster joint information and educational exchanges between the hearing aid industry and the cellular phone industry to increase the opportunity to understand the limitations and technical parameters that each industry works under in designing and developing their respective products."[19]

Clearly, FCC guidance is needed at this point. The time is now for the Commission to work with the FDA and both the hearing aid and handset industries on compatibility solutions for the future.

IV. **The Experience of Other Countries**

Some representatives of the wireless industry commenting on this proceeding recommend that the Commission follow the example of other countries in resolving the

[14] Sprint at 21; Matsushita at 9-10; RERC-TA Comments at 29.
[15] Sprint at 18-19.
[16] Sprint at 21.
[17] Matsushita at 9-10.
[18] AWS Comments at 5; Cingular Comments at 8; Sprint Comments at 5
[19] TIA Comments at 25.

HAC wireless issue. For example, both CTIA and TIA point to Australia and Europe as models for the United States in handling this problem.[20] Specifically, CTIA states that "[i]n Europe and Australia, RF interference and hearing aid susceptibility issues are managed by employing a scientific-based approach that has focused on increasing the immunity of the hearing aid, increasing the distance between the phone and the hearing aids, and extensive public education."[21]

The progress that Australia has made in gradually improving the immunity of hearing aids to withstand bystander interference from GSM is praiseworthy. However, to resolve consumers' serious problems with access to GSM wireless service, we point out that the Australian government relied primarily on the fact that CDMA performs better in terms of hearing aid interference than does GSM, which requires an accessory to significantly distance the handset from the hearing aid. Moreover, one cannot compare the experience of Australia with that of the United States without recognizing that the Australian laws with respect to mandates for accessible telecommunications products and services are different from those in our country. As noted below, segments of the Australian government have made clear that they are relying on the mandates that *we* place on wireless manufacturers to ultimately deliver a worldwide solution to the wireless HAC problem.

In parts of the world where GSM is the only available digital wireless technology, consumers who wear hearing aids appear to be having a difficult time making the transition that the rest of their society has made into mobile telecommunications. **We cannot recommend the policy approach of retaining the existing exemption for**

[20] CTIA Comments at 20; TIA Comments at 3.
[21] CTIA Comments at 20.

wireless handsets and relying on voluntary actions and changes in hearing aids only, when we know that GSM will grow dramatically in U.S. networks and that voluntary action has not worked. To support this statement, we refer to the results of a consumer survey in the United Kingdom (UK), where GSM has been the only digital technology.

1. United Kingdom

In our earlier comments, we cited to a report issued within the past year by the UK's Hearing Concern and the Telecommunications Action Group, on hearing aid users' experience with GSM digital wireless telephones.[22] Although we mentioned the report only briefly in our initial comments, the emphasis by several parties to this proceeding on other nations' performance in dealing with the HAC problem warrants an elaboration of the UK survey's results. The main findings of the survey demonstrated that hearing aid wearers are still having considerable difficulty using digital (GSM) phones with their hearing aids. The study found that, "[e]xtremely few hearing aid wearers" have been successful in using a digital mobile phone, and "[h]earing aid wearers are very frustrated by the lack of progress in the developments to enable them to use digital mobile phones conveniently, effectively, and at no additional cost." Moreover, most of the respondents who were able to use the phones successfully needed to either switch off their hearing aid, remove it, or use an adaptation to put distance between the aid and the phone.

According to the study's findings, the results "did not point clearly to either hearing aids or digital mobile phones" as the means for eliminating the problem. The

[22] RERC-TA Comments at 31, n.13, citing to Hearing Concern and Telecommunications Action Group (UK 2001). *Hearing Aids and Digital Mobile Phones: A Survey of Experiences of Hearing Aid Wearers.* http://www.schael.co.uk/tag/hearing_aids_mobiles_report.PDF (UK Study).

report also found that "[d]igital hearing aids appear not to be a panacea for the problem, although a few produced the best results that were reported. A slightly higher proportion of users of newer aids (1998 and later) reported greater clarity, but the difference was marginal."

The UK study also found that interference is a significant problem with GSM technology. Three quarters of respondents reported interference when trying to use a mobile phone. Additionally, more than half of the respondents reported experiencing discomfort due to interference, and in some cases this discomfort reached a painful level. The results of this consumer survey demonstrate that in the UK, as recently as last year, wireless phones have not been made compatible with hearing aids.

2. Australia

CTIA, TIA and Sprint all place significant reliance on the manner in which Australia has handled the hearing aid compatibility issue. CTIA and TIA direct the Commission to a new Australian law that specifies the permissible level of hearing aid immunity for bystander interference (the Class C1 standard).[23] TIA explains that because the Australian government took a lead on this issue, most Australians can now use CDMA phones without interference.[24] CTIA seems to express frustration with the failure of the U.S. government to impose similar hearing aid immunity standards.[25]

However, when one takes a close look at the progress made in Australia, one can see that, in fact, amelioration of the wireless HAC problem in Australia appears less to be a result of changes in hearing aids than a result of the availability of more-compatible

[23] TIA at 20; CTIA at 15.
[24] TIA at 18.
[25] CTIA at 16.

CDMA phones in that country. Moreover, as will be shown below, rather than having solved the HAC problem itself, if anything, Australia continues to look to the United States for a long-term solution to the compatibility problem because its market size and policy do not permit direct action.

In 1999, consumers in Australia initiated a complaint under the Australian Disability Discrimination Act, when the analog network was replaced completely with GSM. The complaint, filed with the Australian Human Rights and Equal Opportunity Commission (HREOC), alleged that hearing aid users had purchased GSM mobile phone services without having been told by service providers and other retailers that these services were not likely to be compatible with their hearing aids. In response to the complaint, the HREOC recommended that service providers and consumers negotiate a means by which individual consumers, dissatisfied with their non-compatible GSM purchases, could obtain accessible wireless services on a case-by-case basis.[26] Fortunately, around the time that the complaint was filed, CDMA was introduced in Australia. Soon afterward, the National Acoustics Labs found that a clamshell CDMA phone, the same type we point to as evidence of technological and market feasibility, would work satisfactorily with the hearing aids of most hard of hearing people in Australia – whether or not their aids had been hardened to bystander interference in accordance with the Class C1 standard. As a result, many of the consumers who sought redress through the HREOC have been able to have their accessibility needs met by switching to CDMA services (with the clamshell handset model); other consumers have been given external accessories at low or no cost.

[26] Report of Inquiry, Mobile Phones and Hearing Aids, Human Rights and Equal Opportunity Commission (July 2000) at §1.8 (HREOC Report).

We commend the HREOC for taking action. We also note that the HREOC was constrained from taking further action by a very different set of legal principles than exists in this country. There is no HAC Act in Australia, *i.e.,* there is no law in Australia that requires equipment manufacturers to make accessible phones.[27]

It is also important to note that the HREOC report actually points to the accessibility policy in the U.S. as ultimately providing a long-term, global solution to the problem of wireless incompatibility. Although the report refers to Section 255[28] and not the HAC Act, the principle is the same; our laws have recognized that market pressures are not likely, in and of themselves, to achieve compatible phone-hearing aid combinations; rather legislative mandates are needed to direct the telecommunications industry to provide such access. The HREOC report explains:

> The most significant feature of telecommunications today is its global nature. The market for telecommunications services covers every country and therefore so does the industry that provides those services. . . .The work of the International Telecommunications Union in setting standards is important but not complete. Those standards are devised in part through interaction with the larger national markets and their regulators. The United States in particular has a significant impact because of the size of its market, the technical sophistication of its industry and the role of the Federal Communications Commission.
>
> United States law about telecommunications accessibility extends to equipment manufacturers. They have to make accessible equipment where this is "readily achievable.[29]

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[27] The report explicitly states: "There is no law about equipment in Australia similar to that in the United States nor, given the small size of our market and the overseas sources of most equipment, is it easy to see how there could be one." HREOC Report at §1.4.

[28] As noted in our earlier comments, in actuality, Section 255 is not having the intended effect of achieving wireless telecommunications access, except in isolated cases, such as a few Samsung handset models. RERC-TA at 3;18.

[29] Australian Human Rights and Equal Opportunity Commission (July 2000). *Report of Inquiry: Mobile phones and hearing aids.* Retrieved January 27, 2002 from http://www.hreoc.gov.au/disability_rights/inquiries/MP_index/hearmobilessummary.htm

The HREOC goes on to conclude that what really matters for Australia "is that international developments are producing solutions in transmission technology and customer equipment that enhance accessibility of telecommunications." Thus, rather than reach the conclusion that its compatibility problems have been solved, the Australian authority actually expresses its belief that the solution to these problems is likely to originate in the U.S., where accessibility policy requires handset manufacturers to bear part of the responsibility for making wireless services accessible to people who wear hearing aids.

V. **Lifting the Exemption for all Transmission Technologies.**

CTIA cautions the Commission that it should "maintain its long-established policy regarding technology neutral solutions, and should not dictate that consumers should use one digital technology over another."[30] We agree that the FCC should not dictate that consumers be limited in choice of wireless provider or manufacturer through an Order that limits HAC requirements to any particular transmission technology. Consumers with hearing disabilities should have the same selection of carriers and handsets available to them that consumers without hearing disabilities have.

CTIA goes on to say that "[i]t is inappropriate or bad policy for the Commission or any government agency to suggest that one digital technology has an advantage over the other."[31] We understand this statement to mean that the FCC should not acknowledge that there are significant differences in the way that the various digital transmission technologies interact with hearing aids. If this is the intended meaning of CTIA's statement, then we disagree. Not recognizing differences in transmission technologies

[30] CTIA at 23.
[31] CTIA at 23-24.

will hamper the Commission's ability to make decisions in resolving the compatibility issue. Lack of awareness of the differences among transmission technologies is already hampering consumers' ability to select wireless phones and services to work with their hearing aids, because the overwhelming majority has no idea that choice of carrier has a large effect on the likelihood that a compatible phone will be found. We note that the government of Australia openly acknowledged the large differences in performance between CDMA, which can be used at the ear in some handsets, and GSM, which cannot.[32] Moreover, the Australian HREOC recognized the importance of informing consumers with hearing aids about these differences; GSM carriers were instructed to inform hearing aid wearers about the factors that could affect their access to wireless service, even if this meant telling these individuals that CDMA phones may perform better than GSM phones.[33]

VI. **The Role of Inductive Coupling**

Although we agree with many industry commenters who recognize that the technology for wireless coupling needs to be updated, we disagree with those who urge that inductive coupling using the telecoil be excluded from consideration as a method of achieving near-term usability with digital wireless phones.

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[32] The HREOC, in its report on the GSM complaint, noted that "GSM mobile phones appear to give acceptable performance with hearing aids only when further devices are used that enable the phone to be kept at a distance from the hearing aid. This does not work for all hearing aid users. . . The general conclusion is that CDMA provides a much more acceptable alternative with research indicating that a majority of hearing aid users will experience significantly less electromagnetic interference from CDMA phones than they do from GSM phones." HREOC Report at §1.1.

[33] The HREOC report states: "Providers of GSM services . . . should advise people who use hearing aids of any factors that might affect access to the service by the user. . . . This can include telling a potential customer that other service providers who deliver CDMA services may provide a more accessible solution."

We concur with those commenters who maintain that the objective of this proceeding should be to achieve usability of wireless phones.[34] As noted in our earlier comments, there may be more than one way to achieve usability.[35] The original definition of HAC was based on a wireline environment, and now should be re-evaluated for application to digital services.

However, as we noted in our initial comments, the available solutions for hearing aid compatibility must, for the present time at least, include inductive coupling, as the only known mechanism for effective coupling between handsets and hearing aids to date.[36] There are a number of commenters that call into question the benefits of achieving compatibility by inductive coupling because, they say, this form of compatibility benefits only a minority of hearing aid wearers.[37] This reasoning ignores the fact that individuals who rely on telecoil coupling have always been in the minority, albeit a substantial one, of hearing aid users. Individuals who need inductive coupling tend to be those with more severe degrees of hearing loss; they are fewer in number than people who have mild hearing loss or hearing loss in only one ear. Congress was aware of this fact when it passed the HAC Act; indeed that Act was intended specifically to preserve telephone accessibility for the population of Americans with greater degrees of hearing loss.

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[34] See CTIA at 2, 3 (usability should guide the Commission – the true intent of the Act is accessibility.); Sprint at 3 (the "real" issue is usability; "people with hearing aids should be able to use digital services without encountering audible interference . . . and, if possible without the use of cumbersome accessories.")
[35] RERC-TA at 24-26; See also ANSI at 15 (any single solution would be incomplete because of the "tremendous array of technologies" for both hearing aids and wireless phones); AAES at 13 (the "complex variety of technologies and configurations offered by both the mobile phone and hearing aid industries" is causing the "solution" to be a variety of solutions).
[36] RERC-TA at 23.
[37] See *e.g.,* AAES at 6; TIA at 5; Sprint at 3.

We also point out that solutions to the compatibility issue need to consider the fact that hearing aids are rarely covered by third-party payers in the United States. Despite rhetoric about "choosing" hearing aids that can resist RF emissions, the cost of purchasing a new hearing aid is a large determinant of whether a person will acquire a hearing aid at all. People who can afford an outlay of several thousand dollars are able to choose newer models with greater immunity at the high end; most people, however, do not have that option available to them. The choice of hearing aid cannot be based solely or even primarily on its performance with digital wireless telephones; the user must consider his or her needs in many listening situations, as well as the cost of that hearing aid. It is important to set standards for compatibility, so that the user can choose a hearing aid that meets his or her needs and still have an expectation that the aid will work with telephones – including digital wireless telephones.

VII. **The Use of Voluntary Standards**

There was considerable discussion in the comments about ANSI C.63.19. The ANSI C.63.19 standard represents a significant effort by both industries to measure the extent to which hearing aids can work with particular wireless handsets. Our objection is to any claim that the *existence* of the standard precludes the need to lift the exemption.

ANSI alleges that the standard is more than a measurement technique, and suggests that the consensus process which worked to develop the standard appears to be resolving the compatibility problem.[38] Citing to the fact that there were few complaints reported at a recent meeting of its working group, ANSI suggests that the industries are already successfully collaborating to resolve the issue at hand.[39] Similarly, AAES asks

[38] ANSI at 17.
[39] *Id.* at 17-18.

for increased reliance on the C63.19 standard, and goes so far as to suggest that the Commission is trying to "solve a solved problem" through its current rulemaking proceeding.[40]

The claims of both AAES and ANSI that the C63.19 standard will resolve the compatibility issue conflict with the reluctance of both the wireless and hearing aid industries to adopt the standard as it now exists. For example, HIA asserts that the present standard is undesirable because the customized nature of hearing aids makes it difficult, if not impossible, to obtain repeatable test results.[41] CTIA points out that the pairing approach will be ineffective without implementation by the hearing aid industry. Moreover, they state that the expenditures for defining both RF emissions and hearing aid immunity levels cannot be justified if the hearing aid industry does not implement the standard.[42]

From a consumer perspective, test results on wireless phones – while not a solution to the compatibility problem – could provide guidance even if the immunity level of the consumer's hearing aid is unknown. Knowing the emission levels of the phones and their classifications can lead consumers – and carriers – to choose models with the best results. Indeed, simply knowing where to start with a phone purchase is better than our current situation. For this reason, should a measurement standard be coupled with technical standards for compatibility, the Commission should require testing under that standard.

[40] AAES at 15.
[41] HIA at 7.
[42] CTIA at 19-20; See also Sprint at 18 (there is no basis for the FCC to require handset manufacturers to undertake the ANSI tests unless hearing aid manufacturers are subject to the same requirement).

Consumer groups reject the standard as a solution, in part because it may not provide information that is usable to consumers.[43] We share this concern, although we see merit to giving the standard a chance to be applied, evaluated in terms of its usefulness to consumers, and refined if necessary. Nevertheless, we do submit that the standard will not be followed by industry if it remains voluntary. A uniform requirement is needed to level the playing field and to ensure consumer choice in the marketplace.

Unfortunately, experience has shown that the telecommunications industry generally does not voluntarily implement standards on accessibility. Although many industry standards for achieving accessibility in telecommunications have been written and approved in industry bodies, the only ones that are implemented in mainstream telecommunications products are those that are required in laws and regulations. The chart below (Table 1) shows a list of the standards known to us on telecommunications accessibility. All of those that are implemented are either specified in FCC regulations or were developed in response to an absolute requirement, such as the requirement for TTY compatibility with wireless systems. The chart shows why consumers, while often supportive of efforts to develop standards, do not equate standards with products they can use. It illustrates why it is necessary for the FCC to lift the HAC exemption for wireless handsets[44].

[43] See *e.g.,* Cochlear Americas (Cochlear) at 6.

[44] We note that HIA proposes revoking the exemption for all "telephones," rather than a limited exemption that would apply to CMRS handsets that are used for real-time two-way switched voice services interconnected with the public switched telephone network. HIA at 8. Should a more limited exemption eliminate access to wireless telephones in any situation where hearing aid users are likely to need them, we agree that the FCC should adopt the broader exemption proposed by HIA.

Table 1: Telecommunication Access Standards and Implementation Status

Number of Standard Containing Accessibility Provision(s)	**Title of Standard Containing Accessibility Provision(s)**	**Firm FCC require-ment?**	**Accessibility Features Implemented in U.S. Mainstream Products?**
3GPP TR26.226	Cellular Text Telephone Modem Description	Yes[*]	Yes (in process)
3GPP TR26.230	Cellular Text Telephone Modem Transmitter Code	Yes*	Yes (in process)
3GPP TR26.231	Cellular Text Telephone Modem Minimum Performance Specifications	Yes*	Yes (in process)
ANSI C.63.19	American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids	No	No
ANSI TIA/EIA-825	A Frequency Shift Keyed Modem For Use On The Public Switched Telephone Network	Yes*	Yes (in process)
EIA 608	Analog Television Closed Captioning	Yes[±]	Yes
EIA 708 A	Advanced Television Closed Captioning	Yes[⊥]	Yes (in process)
EIA RS 504	Signal level requirements for hearing aid telecoil compatibility and volume control	Yes[•]	Yes
ETSI dtr/hf 02015 version 1.5.2	Draft ETSI report on text telephony	N/A (ETSI)	No
ETSI ETR 333	Text Telephony, User Requirements And Recommendations	N/A (ETSI)	No
IETF RFC 2793	RTP Payload for Text Conversation.	No	No
ITU-T Recommendation H.224	A real time control protocol for simplex applications using the H.221 LSD/HSD/HLP channel.	No	No
ITU-T Recommendation H.248;	Gateway control protocol	No	No
ITU-T Recommendation H.320	Narrow-band visual telephone systems and terminal equipment.	No	No
ITU-T Recommendation H.323 Annex G;(02/00)	Text Conversation and Text SET.	No	No
ITU-T Recommendation H.324	Terminal for low bit-rate multimedia communication	No	No
ITU-T Recommendation Rec.V.61	Analog simultaneous voice and data (permits Voice carry over with ASCII modems	No	No
ITU-T Recommendation T.134	Text Chat Application Entity	No	No
ITU-T Recommendation T.140	Protocol for multimedia application text conversation.	No	No

[*] CC Dkt No. 94-102, Report and Order and FNPRM, 1 FCC Rcd 18676, 18702 (1996), recon., 12 FCC Rcd 22665 (1997).

[±] U.S.C. Sec. 303(u), 300(b); 47 C.F.R. Sec. 15.119.

[⊥] 47 C.F.R. Sec. 15.122.

[•] 47 U.S.C. Sec 610(c) ; 47 C.F.R. Sec. 68.316

Number of Standard Containing Accessibility Provision(s)	**Title of Standard Containing Accessibility Provision(s)**	**Firm FCC require-ment?**	**Accessibility Features Implemented in U.S. Mainstream Products?**
ITU-T Recommendation V.18	Operational and Interworking Requirements for DCEs Operating in the Text Telephone Mode	No	No
ITU-T Recommendation V.250	Serial asynchronous automatic dialling and control	No	?
ITU-T Recommendation V.8	Procedures for starting sessions of data transmission over the public switched telephone network	No	No
ITU-T Recommendation V.8 *bis*	Procedures for the identification and selection of common modes of operation between Data Circuit-terminating Equipments (DCEs) and between Data Terminal Equipments (DTEs) over the PSTN	No	No
T1.718	PCS 1900 - Cellular Text Telephone Modem (CTM) Transmitter Bit Exact C-Code	Yes[*]	Yes (in process)
T1.719	PCS 1900 - Cellular Text Telephone Modem (CTM) General Description	Yes*	Yes (in process)
T1.720	PCS 1900 - Cellular Text Telephone Modem (CTM) Minimum Performance Requirements	Yes*	Yes (in process)
TIA IS-127-2	Enhanced Variable Rate Codec, Speech Service Option 3 for Wideband Spread Spectrum Digital Systems, Addendum 2	Yes*	Yes (in process)
TIA IS-707-A-2	Data Services Options for Spread Spectrum Systems - Radio Link Protocol Type 3 - Addendum No. 2	Yes*	Yes (in process)
TIA IS-733-1	High Rate Speech Service Option 17 for Wideband Spread Spectrum Communications Systems	Yes*	Yes (in process)
TIA IS-789A	Electrical Specification for the Portable Phone to Vehicle Interface	Yes*	Yes (in process)
TIA IS-823	TTY/TDD Extension to TIA/EIA 136-410 Enhanced Full Rate Speech Codec	Yes*	Yes (in process)
TIA -IS-840	Minimum Performance Standards for Text Telephone Signal Detector and Text Telephone Signal Regenerator	Yes[*]	Yes (in process)
TIA TSB-121	2.5 mm Audio Interface For Mobile Wireless Handsets - Text Telephones (TTY)	Yes*	Yes (in process)
TIA/EIA 136-270-B	TDMA 3rd Gen Wireless- Mobile Stations Min Performance and 136-280-B (-do- Base Station Min Performance)	Yes*	Yes (in process)
TIA/EIA-688	DTE/DCE Interface For Digital Cellular Equipment	Yes*	Yes (in process)

[*] CC Dkt No. 94-102, Report and Order and FNPRM, 1 FCC Rcd 18676, 18702 (1996), recon., 12 FCC Rcd 22665 (1997).

[*] CC Dkt No. 94-102, Report and Order and FNPRM, 1 FCC Rcd 18676, 18702 (1996), recon., 12 FCC Rcd 22665 (1997).

VIII. **Consumer Education and Outreach**

A number of the commenters to this proceeding note the importance of providing comprehensive education and outreach on accessibility features and devices for use with wireless services.[45] CTIA states that the wireless industry is now "prepared and willing to provide education and information to consumers, the hearing aid industry, audiologists and hearing specialist and wireless industry customer care, sales and marketing personnel."[46] Similarly, AT&T Wireless promises to educate the general public, as well as sales and service people about the options available for people with disabilities.[47]

We agree with these parties that it is critically important to educate company support and sales staff, hearing professionals, and consumers on interim accessibility measures (*e.g.,* external accessories) and other options for achieving compatibility. As we noted in our earlier comments, both manufacturers and service providers already have an existing obligation under Section 255 to make such information available to consumers.[48] Accordingly, we agree with Cingular that the Commission should "require manufacturers to supply detailed information regarding handset and hearing aid compatibility to CMRS carriers," and should require CMRS carriers to pass this information along to hearing aid wearers.

The RERC-TA does not agree, however, with what appears to be the suggestion of some parties that education, in and of itself, will resolve the HAC issue. Sprint, for example, states that the issue in this proceeding is whether the federal government should

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[45] See *e.g.*, Cingular at 10 (information is "critically important" to enable hearing aid wearers to select the handset appropriate for them); AG Bell at 14 (providers should be encouraged to educate their retail staff on accessibility needs); Sprint at 20 (consumers and audiologists need practical information about the compatibility issue, options, and the ways to test digital services prior to purchasing phones).
[46] CTIA at 24.
[47] AWS at 5.
[48] RERC-TA at 31, citing 47 C.F.R. §§6.3; 6.11.

require compatibility between hearing aids and handsets[49] *or* whether it should educate the public so that consumers can make decisions on the level of hearing aid immunity that they need. Consumer education cannot be a substitute for the technical standards that are needed to provide full access to wireless handsets. Rather, consumer education needs to be one component of a larger plan designed to achieve hearing aid compatibility with wireless handsets.

IX. **Periodic Reporting**

The RERC-TA is joined by other commenters in requesting that the Commission impose reporting requirements on the wireless industry, pending a complete solution to the HAC issue.[50] AAES correctly explains that there is no central location to which progress on this issue has been reported on a regular basis.[51] Similarly, TDI recommends that the Commission require the submission of quarterly reports by the members of the wireless industry.[52] Cingular requests that carriers not be required to submit progress reports, and instead urges the Commission to impose any reporting requirements on handset manufacturers, who will have the information that is relevant on hearing aid compatibility.[53]

Over the past six and a half years, since the initial Hear-It Now petition was filed, the wireless industry has not been required to submit reports on progress toward hearing aid compatibility. The result has been that, after the first wave of activity in 1996-97, communication between representatives of the wireless and hearing aid industries has

[49] Sprint at 4. Interestingly, Sprint phrases this in terms of whether hearing aids should be made "digital handset compatible," not whether the handsets should be made compatible with hearing aids.
[50] RERC-TA at 33.
[51] AAES at 13-14.
[52] TDI at 6.
[53] Cingular at 11.

been minimal, with the exception of those working on the ANSI C.63.19 standard. In addition, the absence of periodic reporting has prevented the FCC and other stakeholders from being kept abreast of industry efforts toward solutions. As of the summer of 2001, when two stakeholder meetings were held at the request of the FCC, wireless industry representatives could not point to specific progress being made toward solving the HAC problem.[54] Information on CDMA handsets that seemed to be accessible came from the consumer representatives, not from the industry.[55]

In contrast, the TTY Forum, which is working under reporting requirements, is seeing excellent communication among the industry stakeholders and a team approach to problem solving. Reporting requirements assist in motivating companies to make measurable progress toward the statutory objectives of accessibility and usability. As we enter the next phase of achieving wireless HAC, a reporting requirement is needed to facilitate the exchange of information among all stakeholders and to allow the Commission to monitor steps undertaken to achieve compatibility solutions.

X. **Conclusion**

Our nation's access policies are based on the recognition that both the public and private sectors can and should take actions to remove barriers that otherwise prevent people with disabilities from doing the things that others can do – traveling, entering buildings, using the telephone, etc. The legislative directives of the HAC Act reflect an attempt by Congress to correct the market failures that have kept these barriers intact for

[54] Summary of Meeting (prepared by CTIA), Hearing Aid and Digital Wireless Phone Compatibility (July 2, 2001) at 4.

[55] Although there is some suggestion in the record that one manufacturer of these phones "deliberately developed" such phones to be accessible to people with disabilities, there was no effort on the part of the wireless industry to share this progress with consumers. Comments of Dana Mulvany in response to the original comments submitted on the Wireless Access Coalition petition (date); AG Bell at 8.

individuals with hearing disabilities wishing to use telephone services. Voluntary efforts to rectify these failures over the past six years have been disappointing. The industry has not taken even the most basic of voluntary measures – testing phones and providing consumers with the information they need to find compatible handsets or accessories. The RERC-TA believes that the time has come for the Commission to step into the HAC issue by lifting the HAC exemption for wireless handsets. It has become apparent that the guidance and oversight of the Commission is needed to achieve a long-term solution for making wireless handsets accessible.

Respectfully submitted,

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